

Claims 14-19, 21-24 and 26-31 were rejected under 35 U.S.C. §103(a) as being allegedly unpatenable over Wheeler, Clayton, Rabon, or Pike, each in view of Battaerd '481.

The rejection is traversed.

The office action dated June 20, 2003 asserted in paragraph 10, that

As a broad range of basic anion exchange resins are taught to be useful as catalysts in the hydroxyethylation of acrylic acid as taught by Wheeler, Clayton, Rabon or Pike, and lacking a showing of criticality for the ion-exchange resins of the instant invention, it would have been obvious to one of ordinary skill in the art [to] employ the triallylamine/diallylamine based ion-exchange resins as taught by Battaerd '481, with an expectation of equivalent success.

The pending office action restates the previously asserted averment in paragraph 7, as follows:

Lacking a showing of criticality for using as the basic anion exchange resin a copolymer of N,N-diallyl amine hydrochloride and N,N,N-triallylamine hydrochloride with a swelling ratio as is instantly claimed, as the catalyst in the hydroxyethylation of acrylic acid as taught by Wheeler, Clayton, Rabon or Pike, it would have been obvious to one of ordinary skill in the art to use such a basic ion exchange resin as taught by Battaerd '481, with an expectation of equivalent results to those taught and/or obvious from the teachings of the primary references.

Thus, as the arguments of the Office Action are understood, the Examiner has averred that one of ordinary skill in the art would have found it obvious to use the Battaerd '481 ion exchange resin as a catalyst in the reactions described by the primary references because the primary references teach a broad range of ion exchange resins.

Applicants disagree with the position taken by the Office Action, at least because, the Office Action has failed to establish *prima facie* obviousness of the instant claims in view of the cited documents. That is, at the time the instant application was filed, there was not motivation to combine the primary and secondary references and/or one skilled in the art would not have

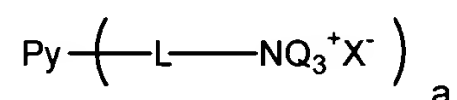
had a reasonable expectation of success based on the combined teachings of the primary documents and Battaerd.

Each of the primary references relied upon in forming the rejection teach ion exchange resins in which the basic sites, e.g., the quaternary ammonium residues, are pendant from the main chain.

Thus, for example, the Wheeler reference recites at column 1, lines 46-52 (emphasis added):

“It is well known that basic (both strong and weak) anion exchanger resins can be prepared or purchased as commercial items. **Of particular interest here are the aminated ion exchange resins, i.e., those having pendant amine groups thereon.** Examples of the myriad ion exchange resins from which the catalysts of the instant invention can be formed are the products of reaction ....” (emphasis added)

In yet another example, Pike teaches that suitable ion exchange resins are represented by the formula:



wherein:

Py is a polymer backbone, L is a bond or divalent organic linker, each Q is an organic group, X is an anionic counterion, and (a) is the average number of reactive sites attached to the polymer backbone. Pike further provides that the polymer backbone should not interfere with the catalytic process.

The other primary documents recite the use of either styrene-divinylbenzene polymers or crosslinked acrylic polymers having quaternary ammonium residues pendant from the polymer backbone. That is, Clayton at column 2, lines 15-24 recites the use of styrene-divinylbenzene ion exchange resins having a quaternary ammonium residue attached to the *para* position of the styrene ring. Similarly, Rabon recites catalysts composed of copolymerization of a crosslinking agent and an acrylate monomer having an quaternary ammonium residue in the side chain (see,

for example the abstract of the invention and column 1, lines 25-51 and column 1, line 61 to column 2, line 8).

As indicated in the respective discussions above, none of the primary documents disclose the method for the addition of a heterocyclic compound or an aldehyde to an active-hydrogen-containing compound provided by claim 1. It also is respectfully submitted that none of the primary documents teach or suggest a method for addition of a heterocyclic compound or an aldehyde to an active-hydrogen-containing compound as set forth in claim 1. Further, the none of the primary documents teach, suggest or offer any motivation to modify the hydroxyalkylation reactions disclosed therein so as to yield the method for addition of a heterocyclic compound or an aldehyde to an active-hydrogen-containing compound as set for in claim 1, nor does any of the primary documents provide any indication that such a modification would be reasonably successful. As such, in the absence of evidence of a reasonable expectation of success or a suggestion to modify the primary references .

While Battaerd '481 recites a new ion-exchange resin prepared by copolymerization of N,N,N-triallylamine and an allylamine comonomer and the use of same in thermally regeneratable ion-exchange processes, there is nowhere discussed using the novel ion-exchange resins as a catalyst for any chemical transformation. As such, it can hardly be said that Battaerd '481 teaches or suggest modifying the catalytic hydroxyalkylation processes recited by the primary documents so as to yield the method for the addition of a heterocyclic compound or an aldehyde to an active-hydrogen-containing compound provided by claim 1 or that such a modification would be reasonably successful.

As provided in MPEP 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F. 2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As provided above, the references cited include no such teaching, suggestion or motivation.

Furthermore, and as provided in MPEP 2143.02, a prior art reference can be combined or modified to reject claims as obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 19866). Further, and as provided in MPEP-2143, the teaching or suggestion to make the claimed combination and the reasonable suggestion of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As can be seen from the forgoing discussion regarding the disclosures of the cited references, there is no reasonable expectation of success provided in any of the references.

It is respectfully submitted that for the foregoing reasons, claims 14-19, 21-24 and 26-31 are patentable over the cited reference(s) and thus, satisfy the requirements of 35 U.S.C. §103. As such, these claims, including the claims dependent therefrom are allowable.

Claims 14-19, 21-24 and 26-29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being allegedly unpatentable over claim 9 of copending U.S. Patent Application No. 09/880,876 (which has now issued as U.S. Patent 6,646,083).


The double patenting rejection is not proper.

Although Applicants do not believe that a terminal disclaimer is necessary, Applicants submit herewith a proper terminal disclaimer with respect to U.S. Patent 6,646,083 in order to obviate the rejection. Accordingly, reconsideration and withdrawal of the rejection are requested.

It is believed the application is in condition for immediate allowance which action is earnestly solicited.

Respectfully submitted,

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John B. Alexander, Ph.D. (Reg. No. 48,399)  
*DIKE, BONSTEIN, ROBERTS & CUSHMAN*  
*Intellectual Property Practice Group*  
EDWARDS & ANGELL, LLP  
P.O. Box 55874  
Boston, MA 02205  
(617) 439-4444